

## CLAIMS:

1. A method for bi-directional color inkjet printing comprising:
  - 5 providing a printer carriage for bi-directional movement along a print swath axis;
  - providing a plurality of color inkjet printheads for printing with inks of different colors, each printhead having a nozzle array for emitting droplets of ink;
  - 10 supporting all of the plurality of color inkjet printheads on the printer carriage so as to form only two rows of printheads such that two or more respective printheads for printing a first primary color and a respective printhead for printing black are positioned in a row directed along the print swath axis and form one row of printheads and two or more printheads for printing a second
  - 15 primary color and a respective printhead for printing yellow are positioned in a row directed along the print swath axis and form a second row of printheads, and wherein nozzle arrays associated with the printheads for printing the first primary color and a nozzle array of the printhead for printing black do not overlap in the direction of the swath axis direction with nozzle arrays associated with the
  - 20 printheads for printing the second primary color and a nozzle array of the printhead for printing yellow;
  - moving the printer carriage in a first direction along the swath axis from one side of a print area to a second opposite side of the print area while driving two or more of the printheads to emit droplets onto a print medium;
  - 25 providing relative motion between the print medium and the carriage in a direction transverse to the swath axis;
  - moving the printer carriage in a second direction along the swath axis from the second side of the print area to the first side, while driving two or more of the printheads to emit droplets onto the print medium; and
  - 30 wherein the printer carriage moves in each of the first and the second directions along the swath axis, droplets of ink of the first primary color and of the second primary color are deposited at least partially overlapping on the

medium to form dots of a color different than the first and second primary colors and further wherein the first primary color and the second primary color are of different primary colors and different in color from yellow and black.

5                   2.       The method of claim 1, wherein the printheads for printing the first primary color include different inks for respectively printing a relatively lighter and relatively darker version of the first primary color and the printhead for printing black is located between the printheads for printing the first primary color so that the black printing printhead is located between a first printhead that prints  
10   a relatively lighter version of the first primary color and a second printhead that prints a relatively darker version of the first primary color.

                  3.       The method of claim 2, wherein the printheads for printing the second primary color include different inks for respectively printing a  
15   relatively lighter and a relatively darker version of the second primary color and further wherein the printhead for printing yellow is located between the printheads for printing the second primary color so that the yellow printing printhead is located between a third printhead that prints a relatively lighter version of the second primary color and a fourth printhead that prints a relatively darker version  
20   of the second primary color.

                  4.       The method of claim 3, wherein the printheads for printing the first primary color additionally include a fifth printhead for printing a third shade of the first primary color that is different from the shade printed by the first  
25   printhead that prints a relatively lighter version of the first primary color and the second printhead that prints a relatively darker version of the first primary color.

                  5.       The method of claim 4, wherein the printheads for printing the second primary color additionally include a sixth printhead for printing a third  
30   shade of the second primary color that is different from the shade printed by the third printhead that prints a relatively lighter version of the second primary color and the fourth printhead that prints a relatively darker version of the second

primary color.

6. The method of claim 3, wherein the printheads for printing the second primary color additionally include a fifth printhead for printing a third shade of the second primary color that is different from the shade printed by the third printhead that prints a relatively lighter version of the second primary color and the fourth printhead that prints a relatively darker version of the second primary color.

7. The method of claim 2, wherein the printheads for printing the first primary color additionally include a third printhead for printing a third shade of the first primary color that is different from the shade printed by the first printhead that prints a relatively lighter version of the first primary color and the second printhead that prints a relatively darker version of the first primary color.

8. The method of claim 1, wherein the printheads for printing the second primary color include different inks for respectively printing a relatively lighter and a relatively darker version of the second primary color, and further wherein the printhead for printing yellow is located between the printheads for printing the second primary color so that the yellow printing printhead is located between a first printhead that prints a relatively lighter version of the second primary color and a second printhead that prints a relatively darker version of the second primary color.

9. The method of claim 8, wherein the printheads for printing the second primary color additionally include a third printhead for printing a third shade of the second primary color that is different from the shade printed by the first printhead that prints a relatively lighter version of the second primary color and the second printhead that prints a relatively darker version of the second primary color.

10. The method of claim 9, wherein the first primary color is

cyan and the second primary color is magenta.

11. The method of claim 9, wherein the first primary color is magenta and the second primary color is cyan.

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12. The method of claim 2, wherein the first primary color is cyan and the second primary color is magenta.

13. The method of claim 2, wherein the first primary color is magenta and the second primary color is cyan.

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14. The method of claim 3, wherein the first primary color is cyan and the second primary color is magenta.

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15. The method of claim 3, wherein the first primary color is magenta and the second primary color is cyan.

16. The method of claim 1, wherein the first primary color is cyan and the second primary color is magenta.

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17. The method of claim 1, wherein the inks in the respective printheads for printing the first primary color are identical to each other in shade and the inks in the respective printheads for printing the second primary color are identical to each other in shade.

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18. A color inkjet printer comprising:  
a printer carriage supported for bi-directional movement along a print swath axis;

a plurality of color inkjet printheads for printing with inks of different colors, each printhead having a nozzle array for emitting droplets of ink of a respective color during movement of the printer carriage in each of the two opposed directions of the carriage movement, all the printheads being mounted

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upon the printer carriage in only two rows such that respective printheads for printing a first primary color and a respective printhead that includes black ink for printing black are positioned in one row along the print swath axis and form a first row of printheads and respective printheads for printing a second primary color and a respective printhead that includes yellow ink for printing yellow are positioned in a second row along the print swath axis and form a second row of printheads, and

5 wherein the nozzle arrays of printheads for printing the first primary color and respective nozzle array of the printhead for printing black do not overlap in the direction along the print swath axis with the nozzle arrays of printheads for printing the second primary color and the nozzle array of the printhead for printing yellow and wherein the printheads for printing the first primary color include ink of the first primary color and the printheads for printing the second primary color include ink of the second primary color, and

10 wherein the first primary color and second primary color are different in color from yellow and black.

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19. The printer of claim 18, wherein the printheads for printing the first primary color include different inks for respectively printing a relatively lighter and relatively darker version of the first primary color and the printhead for printing black is located between the printheads for printing the first primary color so that the black printing printhead is located between a first printhead that prints a relatively lighter version of the first primary color and a second printhead that prints a relatively darker version of the first primary color.

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20. The printer of claim 19, wherein the printheads for printing the second primary color include different inks for respectively printing a relatively lighter and relatively darker version of the second primary color and further wherein the printhead for printing yellow is located between the printheads for printing the second primary color so that the yellow printing printhead is located between a third printhead that prints a relatively lighter version of the second primary color and a fourth printhead that prints a relatively darker version

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of the second primary color.

21. The printer of claim 20, wherein the printheads for printing the first primary color additionally include a fifth printhead for printing a third  
5 shade of the first primary color that is different from the shade printed by the first printhead that prints a relatively lighter version of the first primary color and the second printhead that prints a relatively darker version of the first primary color.

22. The printer of claim 21, wherein the printheads for printing  
10 the second primary color additionally include a sixth printhead for printing a third shade of the second primary color that is different from the shade printed by the third printhead that prints a relatively lighter version of the second primary color and the fourth printhead that prints a relatively darker version of the second primary color.

15 23. The printer of claim 20, wherein the printheads for printing the second primary color additionally include a fifth printhead for printing a third shade of the second primary color that is different from the shade printed by the third printhead that prints a relatively lighter version of the second primary color  
20 and the fourth printhead that prints a relatively darker version of the second primary color.

24. The printer of claim 19, wherein the printheads for printing the first primary color additionally include a third printhead for printing a third  
25 shade of the first primary color that is different from the shade printed by the first printhead that prints a relatively lighter version of the first primary color and the second printhead that prints a relatively darker version of the first primary color.

25. The printer of claim 18, wherein the printheads for printing  
30 the second primary color include different inks for respectively printing a relatively lighter and relatively darker version of the second primary color and wherein the printhead for printing yellow is located between the printheads for

printing the second primary color so that the yellow printing printhead is located between a first printhead that prints a relatively lighter version of the second primary color and a second printhead that prints a relatively darker version of the second primary color.

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26. The printer of claim 25, wherein the printheads for printing the second primary color additionally include a third printhead for printing a third shade of the second primary color that is different from the shade printed by the first printhead that prints a relatively lighter version of the second primary color and the second printhead that prints a relatively darker version of the second primary color.

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27. The printer of claim 26, wherein the first primary color is cyan and the second primary color is magenta.

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28. The printer of claim 26, wherein the first primary color is magenta and the second primary color is cyan.

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29. The printer of claim 19, wherein the first primary color is cyan and the second primary color is magenta.

30. The printer of claim 19, wherein the first primary color is magenta and the second primary color is cyan.

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31. The printer of claim 20, wherein the first primary color is cyan and the second primary color is magenta.

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32. The printer of claim 21, wherein the first primary color is magenta and the second primary color is cyan.

33. The printer of claim 18, wherein the first primary color is

cyan and the second primary color is magenta.

34. The printer of claim 18, wherein a controller is coupled to the printheads to control the operation of the printheads so that droplets of ink of  
5 the first and second primary colors at least partially overlap during printing to form other colors on the receiver medium.

35. The printer of claim 18, wherein the inks in the respective printheads for printing the first primary color are identical to each other in shade  
10 and the inks in the respective printheads for printing the second primary color are identical to each other in shade.